

## CLAIMS

What is claimed is:

1           1.     A cordless communication system capable of providing voice and data  
2 service, comprising:  
3           a first device; and  
4           a second device capable of wireless communication with said first device via an air  
5           interface;  
6           wherein the air interface employs a frame structure suitable for communication of  
7           asynchronous information using a HomeRF SWAP protocol and  
8           isochronous information using a WDCT protocol.

1           2.     The cordless communication system of claim 1, wherein the frame structure  
2 includes at least one WDCT time slot suitable for communicating the isochronous  
3 information if voice service is requested.

1           3.     The cordless communication system of claim 2, wherein the air interface  
2 utilizes a WDCT carrier frequency, bandwidth and bit duration while the at least one  
3 WDCT time slot is transmitted.

1           4.     The cordless communication system of claim 2, wherein the at least one  
2 WDCT time slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT  
3 receive slot directly following the WDCT transmit slot in the frame structure.

1           5.     The cordless communication system of claim 2, wherein the at least one  
2 WDCT time slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT  
3 transmit slot being followed by the WDCT receive slot after approximately 5 ms.

1           6.     The cordless communication system of claim 1, wherein the frame structure  
2 includes a WDCT control channel suitable for controlling devices of the cordless

3 communication using voice service when no voice service is requested.

1 7. The cordless communication system of claim 6, wherein the air interface  
2 utilizes a WDCT carrier frequency, bandwidth and bit duration while the WDCT carrier  
3 channel is transmitted.

1 8. The cordless communication system of claim 1, wherein, if no isochronous  
2 information is to be transmitted within the frame structure, the frame structure is formatted  
3 to include in order a hop command, a beacon, a SWAP period suitable for transmission of  
4 asynchronous information, and a WDCT control channel suitable for controlling devices  
5 of the cordless communication system using voice service.

1 9. The cordless communication system of claim 1, wherein, if isochronous  
2 information is to be transmitted within the frame structure, the frame structure is formatted  
3 to include in order a hop command, a first WDCT transmit slot, a beacon, a first SWAP  
4 period, a first WDCT receive slot, a second SWAP period, a second WDCT transmit slot,  
5 a third SWAP period, a second WDCT receive slot, and a fourth SWAP period, the SWAP  
6 periods being suitable for transmission of asynchronous information using a CSMA/CA  
7 access mechanism according to the HomeRF SWAP protocol and the WDCT transmit and  
8 receive slots being suitable for transmission of isochronous information using a TDMA  
9 access mechanism according to the WDCT protocol.

1 10. The cordless communication system of claim 9, wherein the first WDCT  
2 transmit slot precedes the first WDCT receive slot by approximately 5 ms, the second  
3 WDCT transmit slot precedes the second WDCT receive slot by approximately 5 ms, and  
4 the first WDCT transmit slot precedes the second WDCT transmit slot by approximately  
5 10 ms.

1 11. The cordless communication system of claim 1, wherein, if isochronous  
2 information is to be transmitted within the frame structure, the frame structure is formatted  
3 to include in order a hop command, a first WDCT transmit slot, a first WDCT receive slot,

4 a beacon, a first SWAP period, a second WDCT transmit slot, a second WDCT receive slot,  
5 and a second SWAP period, the SWAP periods being suitable for transmission of  
6 asynchronous information using a CSMA/CA access mechanism according to the HomeRF  
7 SWAP protocol and the WDCT transmit and receive slots being suitable for transmission  
8 of isochronous information using a TDMA access mechanism according to the WDCT  
9 protocol.

1           12.    A cordless communication system capable of providing voice and data  
2 service, comprising:  
3           a first device; and  
4           a second device capable of wireless communication with said first device via an air  
5           interface employing a frame structure suitable for transmission of  
6           asynchronous information utilizing a HomeRF SWAP protocol;  
7           wherein, if voice service is provided between said first device and said second  
8           device, the frame structure further includes at least one time slot suitable for  
9           communicating isochronous information utilizing a WDCT protocol; and  
10          wherein, if voice service is not provided between said first device and said second  
11          device, the frame structure further includes a WDCT control channel  
12          suitable for controlling devices of the cordless communication system  
13          requiring voice service.

1           13.    The cordless communication system of claim 12, wherein the WDCT  
2 control channel is disposed at the end of the frame structure.

1           14.    The cordless communication system of claim 12, wherein the air interface  
2 utilizes a WDCT carrier frequency, bandwidth and bit duration while the at least one  
3 WDCT time slot and the WDCT control channel are transmitted.

1           15.    The cordless communication system of claim 12, wherein the at least one  
2 WDCT time slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT  
3 receive slot directly following the WDCT transmit slot in the frame structure.

1           16.    The cordless communication system of claim 12, wherein the at least one  
2 WDCT time slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT  
3 transmit slot being followed by the WDCT receive slot after approximately 5 ms.

1           17.    A method of providing voice and data service for communication of  
2 information in a cordless communication system, comprising:  
3           determining if voice service is required; and  
4           communicating at least one frame of the information being communicated, the at  
5           least one frame having a frame structure suitable for transmission of  
6           asynchronous information using a HomeRF SWAP protocol and  
7           isochronous information using a WDCT protocol;  
8           wherein, if no voice service is required, the frame structure includes a WDCT  
9           control channel suitable for controlling devices of the cordless  
10          communication system requiring voice service; and  
11          wherein, if voice service is required, the frame structure includes at least one  
12          WDCT time slot suitable for communicating isochronous information.

1           18.    The method as claimed in claim 17, further comprising altering the carrier  
2 frequency of the air interface from a SWAP carrier frequency to a WDCT carrier frequency  
3 when at least one of a WDCT control channel and a WDCT time slot are transmitted.

1           19.    The method as claimed in claim 17, further comprising altering the  
2 bandwidth of the air interface from a SWAP bandwidth to a WDCT bandwidth when at  
3 least one of a WDCT control channel and a WDCT time slot are transmitted.

1           20.    The method as claimed in claim 17, further comprising altering the bit rate  
2 of the air interface from a SWAP bit rate to a WDCT bit rate when at least one of a WDCT  
3 control channel and a WDCT time slot are transmitted.

1           21.    The method as claimed in claim 17, wherein transmitting at least one frame  
2 suitable for containing data information further comprises transmitting the WDCT control  
3 channel at the end of each frame.

1           22.    The method as claimed in claim 21, wherein transmitting the WDCT  
2 dummy bearer at the end of the SWAP frame structure comprises transmitting the WDCT

3 control channel approximately every 20 ms.

1 23. The method as claimed in claim 17, wherein the at least one WDCT time  
2 slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT receive slot  
3 directly following the WDCT transmit slot in the frame structure.

1 24. The method as claimed in claim 17, wherein the at least one WDCT time  
2 slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT transmit slot  
3 being followed by the WDCT receive slot after approximately 5 ms.